

App. No. 10/708,400
Amendment dated February 1, 2006
Reply to Office action of November 1, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the present application.

Listing of Claims:

Claim 1 (currently amended): A heat sink fan for cooling a heat generating electrical component, comprising:

a heat sink including a base portion with a central axis and a plurality of heat radiating fins integrally or fixedly formed on the side surface of the base portion, each of the heat radiating fins extending away from the central axis, and having at least one end rim face radially distal edge;

a fan motor unit including an axial flow fan having a rotational axis, a housing unit connected fixedly with the axial flow fan, the housing unit ~~having~~ including a housing and at least one arm portion~~[[,]]~~; wherein

the fan motor unit is arranged by the housing unit, ~~where~~ with the rotational axis ~~[[is]]~~ substantially corresponding to the central axis, on a first end side of the heat sink, for supplying cooling air to the heat sink~~[[,]]~~;

the arm portion ~~is extending~~ extends from the housing ~~[[to]]~~ towards a second end side of the heat sink~~[[,]]~~; and

an engaging portion is formed at a tip of the arm portion; and

~~a protrusion or a recess formed on an envelope surface of the end rim faces of the heat-radiating fins, wherein the engaging portion is engaged with the protrusion or the recess~~ at least one of the heat radiating fins is formed with a distal-edge protrusion or recess, so as to define along the envelope of the heat sink at

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least one discrete engagement feature for engagement with the engaging portion of the arm portion so that the fan motor unit ~~[[is]]~~ when attached to the heat sink with ~~restriction of~~ is restricted in relative movement in the axial direction.

Claim 2 (original): The heat sink fan according to claim 1, wherein the protrusion or the recess is formed by a machining process of the envelope surface after forming the base portion and the heat radiating fins.

Claim 3 (original): The heat sink fan according to claim 1, the fan motor unit additionally having at least one positioning portion extending from the housing to the second end side of the heat sink, wherein an inner surface of the positioning portion is contacted with a part of an envelope surface of the heat radiating fins, for preventing the fan motor unit from moving against the heat sink radially.

Claim 4 (original): The heat sink fan according to claim 1, wherein at least one flat envelope portion is formed on the envelope surface of the heat radiating fins, the flat envelope portion being parallel to the central axis and formed by controlling lengths of a portion of the heat radiating fins in directions away from the central axis.

Claim 5 (original): The heat sink fan according to claim 1, wherein the heat radiating fins extend radially with being curved in a predetermined direction with respect to the central axis.

Claim 6 (original): The heat sink fan according to claim 1, wherein the heat radiating fins extend radially with being slanted in a predetermined direction with respect to the central axis.

Claim 7 (original): The heat sink fan according to claim 1, wherein the engaging portion is formed like a pawl or a hook extending from the tip of the arm

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portion toward the central axis.

Claim 8 (original): The heat sink fan according to claim 1, wherein two or more the arm portions is extending from the housing to a second end side of the heat sink.

Claim 9 (original): The heat sink fan according to claim 8, wherein two or more the positioning portion is extending from the housing to the second end side of the heat sink.

Claim 10 (currently amended): A heat sink fan for cooling a heat generating electrical component, comprising:

a heat sink including a base portion with a central axis and a plurality of heat radiating fins integrally or fixedly formed on the side surface of the base portion, each of the heat radiating fins extending away from the central axis, and having at least one ~~end rim face~~ radially distal edge;

a fan motor unit including an axial flow fan having a rotational axis, a housing unit connected fixedly with the axial flow fan, the housing unit ~~having~~ including a housing and ~~two or more~~ a plurality of arm portions[~~[,]~~]; wherein

the fan motor unit is arranged by the housing unit, ~~where~~ with the rotational axis ~~[[is]]~~ substantially corresponding to the central axis, on a first end side of the heat sink, for supplying cooling air to the heat sink~~[[,]]~~;

the plurality of arm portions ~~is extending~~ extends from the housing ~~[[to]]~~ towards a second end side of the heat sink~~[[,]]~~; and

~~two or more~~ an engaging portions is formed at a tip of each of the arm portions; and

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~~two or more protrusions or recesses formed on an envelope surface of the end rim faces of the heat radiating fins, wherein the engaging portions is engaged with the protrusions or the recesses~~ select ones of the heat radiating fins are formed with a distal-edge protrusion or recess, so as to define along the envelope of the heat sink a plurality of discrete engagement features for engagement with the engaging portion of the plurality of arm portions so that the fan motor unit ~~[[is]]~~ when attached to the heat sink ~~with restriction of~~ is restricted in relative movement in the axial direction.

Claim 11 (original): The heat sink fan according to claim 10, wherein the fan motor unit additionally having at least one positioning portion extending from the housing to the second end side of the heat sink, wherein a inner surface of the positioning portion is contacted with a part of an envelope surface of the heat radiating fins, for preventing the fan motor unit from moving against the heat sink radially.

Claim 12 (original): The heat sink fan according to claim 10, wherein the fan motor unit additionally having two or more positioning portions extending from the housing to the second end side of the heat sink, wherein a inner surface of the positioning portions are contacted with a part of an envelope surface of the heat radiating fins, for preventing the fan motor unit from moving against the heat sink radially.

Claim 13 (cancelled)

Claim 14 (cancelled)